

MEMORANDUM FOR: DIRECTOR OF INTELLIGENCE, HEADQUARTERS, UNITED STATES AIR FORCE

SUBJECT: Immediate Survey of Present Soviet Sufficiency in Aviation Fuels

- REFERENCES:
- (a) Letter from Deputy Director, Staff, Munitions Board, to DCI, 19 May 1950
 - (b) Memorandum from AD/ORE to Service Intelligence Agencies, Deputy Director for Intelligence, Joint Staff, and Director, Staff, Munitions Board, 20 June 1950, subject: "Munitions Board Request for Studies of Soviet Purchases of Selected Commodities"
 - (c) IM-181, "Resources and Allocations of Steel, Aluminum, Petroleum, Electric Power, and Technical Manpower for the USSR, 1949-1952", Revised 10 February 1950
 - (d) Memorandum from AD/ORE to Service Intelligence Agencies, Deputy Director for Intelligence, Joint Staff, 6 July 1950

1. Developments in Korea have required the writing of numerous forecasts of possible Soviet intentions. Such forecasts have inevitably hinged upon, or at least have been strongly colored by, our tentative estimate that the Soviet Union will not be industrially ready, particularly with respect to certain critical items, for a sustained global war for several years.

2. While the complete survey referred to in the foregoing references probably cannot, even with the greatest priority be completed until November or December, it has occurred to me that we should be able to make a test run of sufficiency in aviation fuels in a much shorter time. This subject has already received a great deal of study by both our Agencies, and there is complete agreement regarding its importance as an index of capabilities. Furthermore, the changes in availability of this item which would be brought about by a sudden Soviet recourse to arms are probably capable of more exact determination than any other single major item.

3. CIA will assume responsibility both for indigenous production and for acquisition of production and stocks in the overrun territories.

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4. I, therefore, request your agency as a matter of priority to undertake the determination, preferably by 1 September 1950, of the following items:

- A. Determination of aviation fuels requirements of the Soviet Air Force for the first and second years of a sustained major war effort commencing 1 January 1951, according to a campaign to be mutually agreed upon. In general, the campaign should cover the initial territorial acquisitions which the Soviet Union could reasonably be expected to set up as a minimum in engaging upon such global war. Grades of the fuels to be mutually agreed upon for the guidance of CIA's work on the production of these fuels.
- B. The determination of the probable percentage of reduction in production that can be accomplished by our bombing schedule in a mutually agreed list of plants.

5. For preliminary agreement on these and other questions that undoubtedly will come up, it is requested that you immediately designate a representative for work on this project. [REDACTED] Extension 3225, CIA chairman of the overall project, is designated as CIA representative for this interim project.

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R. H. HILLENKOETTER
Rear Admiral, USN
Director of Central
Intelligence

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ORE:D/EE: [REDACTED] - 1 August 1950

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Committee - Aviation Fuel Project

Air Force - Col. Skiras A. Blair
Lt. Col. Archer E. Lackey
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Army - John Kulgren
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Navy - Thomas Jefferson

Joint Intelligence
Group - Col. H. L. Kreider

CIA -  25X1A9a

181-II (Munitions Board Project) included in addition to the above, representatives of OSI-CIA and Economic Division CIA, and the Section Chiefs of Economic Branch D/EE, CIA who have primary interests in the items involved in the project.

9 January 1951

Questions on Availability of Aviation Fuel

1. How much 95+ octane was or could have been available to the Soviets for each of the years 1946-1947-1948-1949?

2. For each of the years 1950-1951-1952-1953, what is the potential Soviet production maximum of each of the blending materials used in the production of 95+ octane, such as alkylate, isopentane, catalytic cracked gasoline, aromatics, TEL, and straight run?

3. For each year 1950-3, what is the Soviet maximum potential production of 100/130 and what quantities of 95/130 and 95/115 could be produced from the remaining blending materials?

4. If the following quantities of 100/130 were produced,

year	1950	1951	1952	1953
100/130	356	821	968	889 (th. m. t.)

what quantities of 95/130 and 95/115 could be produced from the remaining blending materials?

5. For each year 1950-3, what is the maximum amount of 95/130 that could be produced and how much 95/115 could be produced from remaining blending materials?

6. For each year 1950-3 what is the maximum amount of 95/115 that could be produced?

7. Give a typical example in working out one of the cases under item 4 above.

Subject: I. Project - Immediate Survey of Present Soviet Sufficiency in Aviation Fuels. II. Critique of Working Paper entitled Potential Wartime Availability of Aviation Fuels dated January 15, 1951.

1. This project on the Soviet position with respect to Aviation Fuels was originally a part of the larger project dealing with a group of selected items designated as IM 181-II (Munitions Board Project). It was established as a separate project by the Director of Central Intelligence in a memorandum dated 1 August 1951, to the Director of Intelligence, USAF, and was accelerated because of its "importance as an index of capabilities" and because it was "capable of more exact determination than any single item" under war conditions. The undersigned was nominated by the Director of CIA as Chairman of the overall project as well as CIA representative for this specific project.

2. The project in essence was set forth in the implementing memorandum, copy of which is attached, as follows:

Air Force was to undertake:

- "A. Determination of aviation fuels requirements of the Soviet Air Force for the first and second years of a sustained major war effort commencing 1 January 1951, according to a campaign to be mutually agreed upon. In general, the campaign should cover the initial territorial acquisitions which the Soviet Union could reasonably be expected to set up as a minimum in engaging upon such global war. Grades of the fuels to be mutually agreed upon for the guidance of CIA's work on the production of these fuels.
- "B. The determination of the probable percentage of reduction in production that can be accomplished by our bombing schedule in a mutually agreed list of plants."

CIA was to assume responsibility both for indigenous production (of aviation fuels) and for acquisition of production and stocks in the overrun territories.

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3. In accordance with the request of the Director of CIA, Committee members were nominated by the Air Force and the representatives of the Army and Navy in the principal Committee were added by request. The list of Committee members is attached.

4. The principal problems involved in the project in the light of previous work done in this general field (ORE 2449, IM-181, etc.) were

(a) Determination of the probable scope of a war; and consequently the quantitative requirements of aviation fuel based on composition (i.e. numbers and types of aircraft) of the USSR Air Force, campaigns, missions, etc. It was decided in Committee to accept ABCI-15 as a basis since the major western powers have agreed that the most likely military operation would involve simultaneously an attack against Western Europe, including Italy; aerial bombardment against the British Isles; campaigns against the Near and Middle East, including Greece and Turkey; attacks with limited objectives in the Far East; and campaigns against the Iberian and Scandinavian Peninsulas. D-day objectives in North America were included.

(b) Assessment of the optimum quality of each type of aviation gasoline for the various types of aircraft, i.e. grade 100/130; 95/130; and 95/115 on the one hand, and less than 95 octane and jet fuel on the other. This division was made since it was known from the previous work that the availability of aviation gasoline of less than 95 octane and jet fuel were ample to meet requirements, whereas the optimum requirement of grade 100/130 quality was likely to be in short supply. The types of aircraft which required 100/130 quality fuel were chosen by careful study and discussion in the Committee and the order of substitution of lower grades

(95/130 and 95/115) were also estimated. The problem thus was resolved to the extent of shortage of the highest grade (100/130) and the substitution of the next higher grades in succession. An estimate was made also of the penalty of such substitution in military performance.

(c) CIA's function was to estimate the production capabilities for all grades of aviation fuels, particularly the high octane grades, from a knowledge of specialized plants known to be in operation for the production of aviation gasoline or its components (such as isopentane, catalytic cracked gasoline, alkylates, aromatic hydrocarbons, etc.). This includes an estimate of rate of duplication or construction of these specialized plants in order to make estimates of aviation gasoline production for future years.

5. The USAF has completed with our cooperation and submitted upward of 20 tables and basic charts which will be useful in future estimates as well as for the present project. These charts show:

- (a) The number and types of aircraft with changes in the Air Force from year to year.
- (b) Fuel consumption rates of various types of aircraft including bombers, fighters, attack, transports, etc.
- (c) Effect of quality on performance of piston engined aircraft.
- (d) Use of aircraft in war, and for peacetime training. Air Force's contribution is practically complete.

6. The Petroleum Section (D/EE, ORE, CIA), which was represented on the Committee, was assigned the study of availability, etc. as outlined under 4 (c) above, and was fully instructed and informed about the availability data which was desired to meet the objective of the project

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and to produce an integrated report. Moreover, essential parts of Air Force requirements data had been turned over to them for guidance. The Chairman of the Committee was informed by the Chief of the Petroleum Section in mid-December that his contribution would be completed immediately after Christmas, and complete instructions were given to him with regard to the material required to complete the project. (Copy of these additional requirements is attached.) No report was submitted by the Chief of the Petroleum Section to the Committee Chairman; on the contrary, a unilateral, uncoordinated working report, including Air Force requirements data, was forwarded through other channels by him.

Part II. Critique of Working Report.

7. The major criticism of the report are:

(a) The principal conclusion of the paper a) that the total potential production of the three high octane aviation gasolines (grades 100/130, 95/130 and 95/115) exceeds total war requirements is in considerable error due to misinterpretation of the Air Force data.

(b) The data presented on wartime requirements of aviation fuel is misleading in that it shows the Air Forces minimum estimate only of 100/130 grade aviation gasoline and does not show the actual optimum requirement. Moreover, it does not emphasize that there is a substantial actual shortage in production of grade 100/130 and that the next higher grades, 95/130 and 95/115, must be substituted for it.

(c) About 50% of the paper is immaterial to the Committee's principal objective of estimating aviation fuels. The long and circuitous discussions which are directed to civilian requirements and ultimately to raw material

for jet fuel are wholly unnecessary and could readily be determined by inspection, particularly in view of the acceptance of the estimate (made by the undersigned) of potential availability of jet fuel in ORE-2449 of approximately 40% of crude oil availability, e. g., the estimated war requirements in 1951 of jet fuel is 523,000 metric tons. The maximum potential yield of jet fuel is 15,000,000 metric tons based on 1950 estimate of 37.5 ~~percent~~ ^{ann t} petroleum production. It is obvious from the relatively low requirements of jet fuel and its priority, that the labored attempts to show its availability are unnecessary in the present connection. Moreover, it could readily be determined by inspection from ORE 2449 that the required amount of jet fuel would not interfere with meeting military requirements of other petroleum products.

8. The working paper fails to include desirable information for a fully integrated report. These data are already available as intermediate results in the results presented, or they could be readily worked up. These questions have been presented to the Petroleum Section, O/RR, CIA and are appended under the title of "Questions on Availability of Aviation Fuel." The questions are intended to obtain information on the available components of aviation gasoline so that the basic data are sufficiently flexible to permit solution of other problems in the future, and the specific blending example requested is for the purpose of showing the method employed to obtain the finished products from the components. A specific reference to the document showing these techniques is also desirable to divorce the report from undisclosed thinking of the individual. The other data are necessary to avoid specific objections raised above and to obtain the answers originally sought by the project as well as to give

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flexibility and utility to the report for future use. More information is required to clarify the basis for estimating duplication or construction of specialized plants for production of aviation gasoline and components, as these estimates may be open to question.

There are other and more detailed objections to the working paper. The most important, however, is that we have a definite responsibility to the Air Force in view of their extensive contributions to the project which the working paper fails to discharge.



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